Tiny Trampoline Challenge

Kit contains:

- Rubber bands
- Toothpicks
- Binder clips
- Plastic wrap
- Measuring tape template
- Golf ball

You will need: scissors, tape, paper, pencil, and a colander. (We have a few colanders to borrow in Youth Services.)

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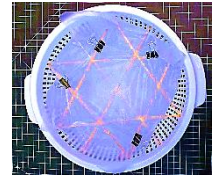
INSTRUCTIONS

In this experiment, you will build a trampoline to bounce a golf ball as high as possible!

Step 1. Find a colander! These are strainers that come in all shapes and materials. If you do not own a colander, ask at the Youth Services desk. We have some to borrow.

Step 2. Make a rubber band web. Poke rubber bands through the holes in the colander. To secure in place, slide a toothpick between the rubber band and the outside of the colander.

Step 3. Create the trampoline surface. Place a sheet of plastic wrap over the web of rubber bands. Attach with binder clips.



Step 4. Cut out and tape together your measuring tape.

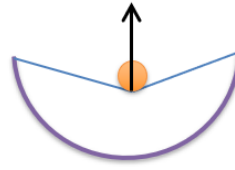
Step 5. Test the trampoline! Drop a golf ball from a height of 24 inches above the trampoline surface. Measure the bounce height and record your data.

Step 6. Improve the design! Think about what worked well and what could be improved about your trampoline. Redesign and test! Iterate several times until you have a trampoline with optimal bounce.

FEEL THE FORCE!

Hold the colander in one hand, and drop the ball with the other. You'll notice that the colander weighs more during the entire time the golf ball is stretching the bands.

It may seem counterintuitive, but the force from the bands on the ball is directed upwards during the whole interaction.



More distance stretched in one direction (ball dropping onto the rubber bands) means more force directed in the other direction (rubber bands pressing the ball upward).

BOOKS TO LEARN MORE

- *Force & Motion* by Peter Lafferty
- *Force and Motion* by Joseph Midthun
- *All About Forces* by Angela Royston